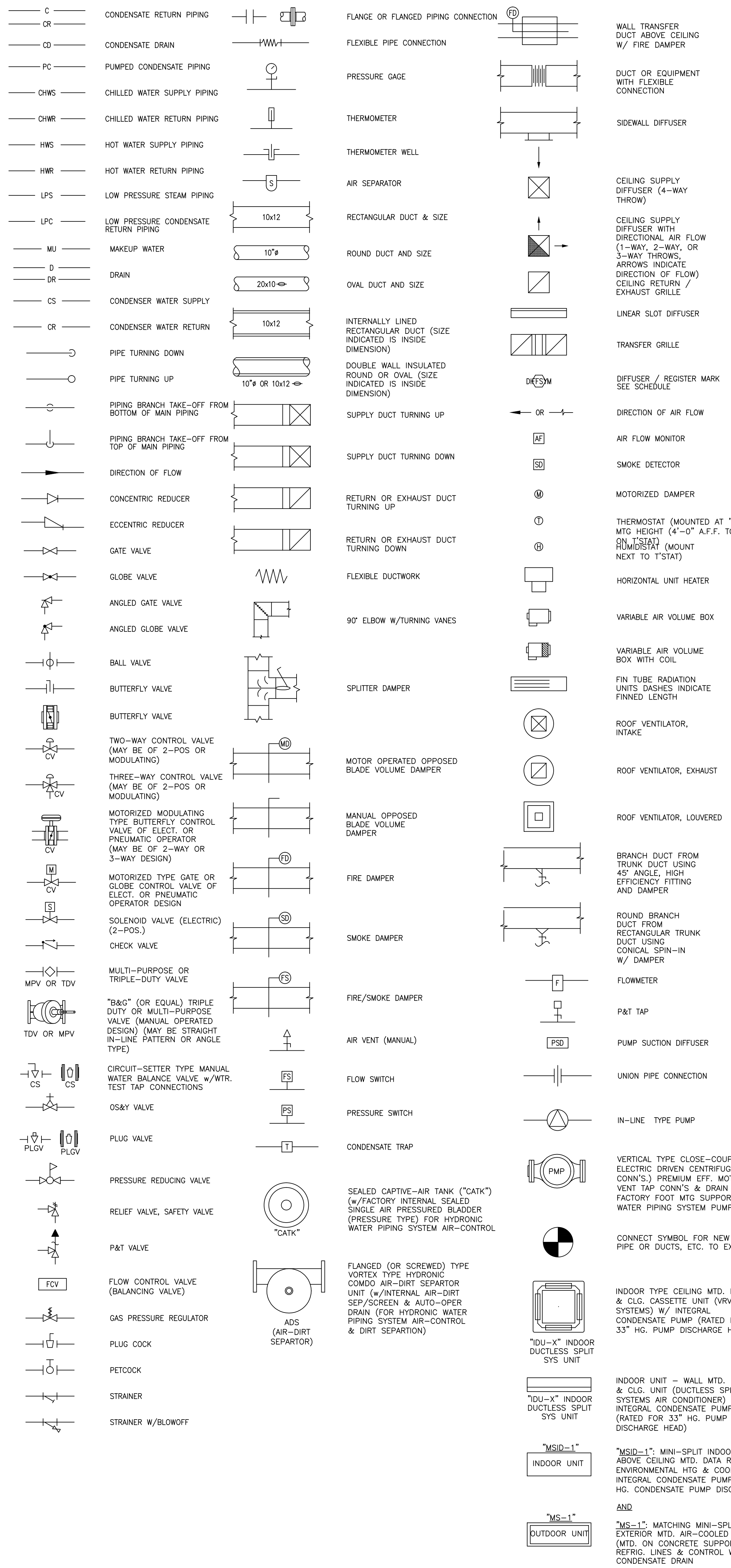


MECHANICAL SYMBOLS

MECHANICAL ABBREVIATIONS

GENERAL NOTES - FOR THE HVAC UPGRADE PROJECT WORK : (ALSO SEE MECHANICAL PLAN NOTES & SPECS.)



ABV	ABOVE	FLEX	FLEXIBLE	PRI	PRIMARY
ACUM	ACCUMULATE	FT	FOOT, FEET	PRV	PRESSURE REDUCING VALVE
AQU	AIR CONDITIONING UNIT	FT LB	FOOT-POUND	PSF	POUNDS PER SQUARE FOOT
ADJ	ADJUSTABLE	FT LB	FLAT ON BOTTOM	PSFA	POUNDS PER SQUARE FOOT ABSOLUTE
AFF	ABOVE FINISHED FLOOR	FOT	FLAT ON TOP	PSFG	POUNDS PER SQUARE FOOT GAGE
AHU	AIR HANDLING UNIT	FP	FREAZING POINT	PSI	POUNDS PER SQUARE INCH ABSOLUTE
AI	ANALOG INPUT	FS	FEET PER MINUTE	PSIA	POUNDS PER SQUARE INCH ABSOLUTE
AMB	AMBIENT	FPS	FEET PER SECOND	PSIG	POUNDS PER SQUARE INCH GAGE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	F & T	FLOAT & THERMOSTATIC	PT	PRESSURE TRANSDUCER, PRESSURE TRANSMITTER
AO	ANALOG OUTPUT	FR	FROM	R/A	RETURN AIR
APPROX	APPROXIMATE	FS	FIRE/SMOKE DAMPER, FREEZE STAT	RAO	RADIANT (E, -OR)
AS	AIR SEPARATOR	FVEL	FACE VELOCITY	RAG	RETURN AIR GRILLE
ASME	AMERICAN SOCIETY MECHANICAL ENGINEERS	G	GRAVITATIONAL CONSTANT	RAQ	RETURN AIR GRILLE
ATM	ATMOSPHERE	GAL	GALLONS	RAQ	RETURN AIR OPENING
AVG	AVERAGE	GEN	GENERAL CONTRACTOR	RCVR	RECIEVER
BHP	BRAKE HORSEPOWER	GPD	GALLONS PER DAY	REC	RECOVERY
BLW	BELOW	GPH	GALLONS PER HOUR	RECR	RECYCULATE
BO	BLOW-OFF	GP	GALLONS PER MINUTE	REFRIG	REFRIGERANT
BD	BOTTOM OF DUCT	GRV	GRAVITY ROOF VENT	REG	REGISTER
BOS	BOTTOM OF STEEL	GT	GREATEST TEMPERATURE DIFFERENCE	REQ'D	REQUIRED
BP	BOLTING POINT	HD	HEAD	RES	RESIST-ANCE, -MITY, -OR)
BT	BLOW THRU	HF	HEPA FILTER	REV	REVOLUTIONS
BTU	BRITISH THERMAL UNIT	HG	HEAT GAIN	RH	RELATIVE HUMIDITY
BWV	BACK WATER VALVE	HGT	HEIGHT	RHC	REHEAT COIL
		HHW	HEATING HOT WATER	RM	ROOM
		HDA	HAND-OFF-AUTOMATIC	RP	REVOLUTIONS PER MINUTE
		HP	HORSE POWER	RPS	REVOLUTIONS PER SECOND
		HPS	HPS OR HPS/HIGH PRESSURE STEAM	S/A	SUPPLY AIR
		HPC	HPS OR HPS/HIGH PRESSURE STEAM CONDENSATE	SAG	SUPPLY AIR GRILLE
		HR	HOUR	SAT	SATURATION
		HTR	HEATER	SD	SMOKE DAMPER
		H & V	HEATING AND VENTILATING UNIT	SD	SMOKE DETECTOR
		HW	HEATING HOT WATER	SENS	SENSIBLE
		HWP	HOT WATER PUMP	SF	SUPPLY FAN, SAFETY FACTOR
		HWR	HEATING HOT WATER RETURN	SG	SPECIFIC GRAVITY
		HWS	HEATING HOT WATER SUPPLY	SH	SENSIBLE HEAT
		HX	HEAT EXCHANGER	SHG	SENSIBLE HEAT GAIN
		HXP	HEAT EXCHANGER PACKAGE	SH	SENSIBLE HEAT
		IAQ	INDOOR AIR QUALITY	SP HT	SPECIFIC HEAT
		IB	INVERTED BUCKET	SP VOL	SPECIFIC VOLUME
		I/O	INPUT/OUTPUT	SPEC	SPECIFICATION
		COND	CONDENS-ER, -ATE, -ING, -ATION	SPLY	SUPPLY
		CTRL	CONTROL	SQ	SQUARE
		CJ	CONDENSER UNIT	S/S	STAINLESS STEEL
		CU FT	CUBIC FEET	STD	STANDARD
		CU IN	CUBIC INCH	STM	STEAM
		CV	CHECK VALVE	S/COND	STEAM CONDENSATE
		CW	COLD WATER	SUCT	SUCTION
		CBP	CONDENSER WATER PUMP	TA	TRANSFER AIR
		DB	DECEBEL, DRY BULB	TD	TEMPERATURE DIFFERENCE, THERMODYNAMIC
		DBT	DRY BULB TEMPERATURE	TEMP	TEMPERATURE
		DEG	DEGREE	TR	TRANSFER GRILLE
		DENS	DENSITY	TRM	THERMIST
		DG	DOOR GRILLE	TK	THICK, THICKNESS
		DI	DIGITAL INPUT	TD	TOP OF DUCT
		DA	DIAMETER	TOS	TOP OF STEEL
		DIFF	DIFFUSER	TRANS	TRANSFER
		DMPR	DAMPER	TS	TEMPERATURE SENSOR
		DN	DOWN	TSTAT	THERMOSTAT
		DO	DIGITAL OUTPUT	TP	TYPICAL
		DP	DEPTH, DEEP, DIFFERENTIAL PRESSURE	UC	UNIT CONDITIONER
		DPT	DEW POINT TEMPERATURE	UF	UNDER FLOOR
		DSAC	DUCTLESS SPLIT AIR CONDITIONER	UH	UNIT HEATER
		DT	DRAW THRU	UN	UNLESS NOTED OTHERWISE
		DWG	DRAWING	UNF	UNDER RAISED FLOOR
		DX	DIRECT EXPANSION	V	VALVE, VOLT
		EA	EACH	VAC	VACUUM
		EAT	ENTERING AIR TEMPERATURE	VAP PRF	VAPOR PROOF
		ECC	ECCENTRIC	VAV	VARIABLE AIR VOLUME
		EDR	EQUIVALENT DIRECT RADIATION	VD	VOLUME DAMPER
		EF	EXHAUST FAN	VEL	VELOCITY
		E/A	EXHAUST AIR	VENT	VENTILATION
		EFF	EFFICIENCY	VERT	VERTICAL
		EG	EXHAUST GRILLE	VF	VENTILATION FAN
		EL	ELEVATION	VFD	VARIABLE FREQUENCY DRIVE
		ELEC	ELECTRICAL	VOL	VOLUME
		ENT	ENTERING	W	WATT
		ESP	EXTERNAL STATIC PRESSURE	WB	WET BULB
		ET	EXPANSION TANK	WBT	WET BULB TEMPERATURE
		EVAP	EVAPORAT(-E, -ING, -ED, -OR)	WG	WATER GAGE
		EW	ENTERING WATER TEMPERATURE	WH	WATER HEATER
		EXH	EXHAUST	WI	WITH
		EXIST	EXISTING	W/	WITH
		EXP	EXPANSION	WMS	WIRE MESH SCREEN
		EXT	EXTERNAL	WP	WEATHER PROOF
		EXTER	EXTERIOR	WT	WEIGHT
		F	DEGREES FAHRENHEIT	YD	YARD
		F TO F	FACE TO FACE	YR	YEAR
		FA	FACE AREA		
		FD	FIRE DAMPER, FLOOR DRAIN		
		FL	FLOOR		

- MECHANICAL BIDDING CONTRACTOR PRE-QUALIFICATIONS REQUIRED: THE MECHANICAL HVAC CONTRACTOR SHALL BE A PRE-QUALIFIED CURRENT N.C. REGISTERED AND LICENSED MECHANICAL CONTRACTOR FOR THIS PROJECT UPGRADE WORK. THE MECHANICAL CONTRACTOR SHALL ALSO BE A PRE-QUALIFIED "DAIKIN" FACTORY TRAINED INSTALLER OF VAV SYSTEMS AS CERTIFIED BY "DAIKIN". HE/SHE SHALL POSSESS CREDENTIALS TO A "DAIKIN" CERTIFIED REGISTERED INSTALLER OF THE SPECIFIED NEW VAV REFRIGERANT SPLIT-DX HEAT-RECOVERY TYPE SYSTEMS, AND SHALL SUBMIT TO THE ENGINEER AND THE OWNER THE TRAINING PROOF OF HIS/HERS "DAIKIN" TESTED AND TRAINED "DAIKIN" INSTALLATION SCHOOL AND TRAINING DOCUMENTATION WITH THE CURRENT AND VALID CERTIFICATES WHICH SHALL BE DATED AS AND WITHIN THE PAST CURRENT (1) YEAR PERIOD OF THE TIME OF HIS/HER BIDDING THIS UPGRADE PROJECT. AS A "DAIKIN" TRAINED INSTALLER, HE/SHE SHALL SUBMIT A WRITTEN LIST OF HIS PAST PROJECT INSTALLATION EXPERIENCE AND HAVE PROOF OF A MINIMUM OF THE PAST 7-YEARS OF HIS PAST MECHANICAL SELF-PERFORMED "VAV" INSTALLATIONS AND EXPERIENCE IN THAT OF THE INSTALLATION OF "DAIKIN" "VAV" (3-TON) HEAT RECOVERY TYPE VAV INSTALLATIONS WHICH INCLUDE THAT OF SINGLE MECHANICAL PROJECTS THAT HAVE HAD MULTIPLE VAV SYSTEMS OF EQUAL SIZED "VAV" SYSTEMS TO THAT OF THIS HVAC UPGRADE SYSTEMS PROJECT. IF THE CONTRACTOR CANNOT PROVIDE THE ABOVE, HE/SHE CANNOT BE ALLOWED TO BID AND BE AWARDED THE CONTRACT FOR THIS PROJECT HVAC UPGRADE.
- ALL NEW REFRIGERANT PIPING SHALL BE OF SIZES SHOWN AND SHALL BE "ASTM-B88" TYPE "K" OR "L" COPPER PIPING UNLESS NOTED OTHERWISE; ALL INTERIOR ABOVEGROUND REFRIGERANT & HVAC CONDENSATE DRAIN WATER PIPING & ABOVEGROUND EXTERIOR REFRIGERANT & DRAIN WATER PIPING SHALL BE INSULATED W/ CLOSED-CELL "R" THICK ELASTOMERIC INSULATION (W/ "PITTSBURGH-CORNING" "FORMULAX" ALL EXTERIOR INSULATED PIPING SHALL BE FINISHED WRAPPED & COVERED WITH AN EXTERIOR PVC (WHITE) PRE-MOULDED SELF-LOCKING JACKETING COVERS FOR STRAIGHT PIPE RUNS AND ALL FITTINGS
  - ALL NEW EXPOSED EXTERIOR ABOVEGROUND INSULATED PIPING SHALL BE INSTALLED W/ PROTECTIVE PVC JACKETING (0.016" THICK) OVER FINISHED INSULATION MATERIAL; ALL INTERIOR ABOVEGROUND CONCEALED & EXPOSED INSULATED PIPING WHICH IS PROTECTED FROM EXTERIOR WEATHER DOES NOT REQUIRE PROTECTIVE PVC JACKETING.
  - IF PROJECT DRAWINGS SHOW NEW WORK TO INCLUDE NEW PIPE AND DUCTWORK SYSTEMS AND ACCESSORIES FOR THE PROJECT, AS MAY BE NOTED AND APPLICABLE TO THE WORK, THE MAXIMUM LENGTH OF FLEXIBLE DUCT RUN-OUTS TO TERMINALS & DIFFUSERS SHALL NOT EXCEED 8'-0". ALL FLEXIBLE DUCT CONNECTIONS TO LOW PRESS. DUCT OR DOWNSTREAM OF TERMINAL UNITS (SUCH AS TRUNK & BRANCH DUCT TAKE-OFFS, ETC.) SHALL BE ACCOMPLISHED BY INSTALLING CONICAL SPRIN-IN-FITTINGS WITH VOLUME DAMPER AND MANUAL LOCKING QUADRANT. SECURE FLEXIBLE DUCT TO FITTING WITH WORM GEAR OPERATED, STAINLESS STEEL BAND CLAMP.
  - THE CONTRACTOR SHALL COORDINATE MECHANICAL WORK WITH THAT OF THE OTHER TRADES AND OWNERS EXISTING BLDG. CONSTRUCTION AND OTHER NEW WORK BEING PERFORMED WHILE THIS PROJECT IS BEING CONSTRUCTED; COORD. ALL WORK PRIOR TO THE INSTALLATION OF ANY MECHANICAL EQUIPMENT, DUCTWORK OR PIPING. CONFIRM ALL NEW REPLACED FINISHED CEILING HEIGHTS BEFORE FABRICATION & INSTALLATION OF NEW DUCTWORK OR EQUIPMENT OR INSTALL OF NEW REPLACED CEILING. NOTE THAT NEW INDOOR HVAC UNITS LOCATED ABOVE CEILING & LOCATED IN ABV. CEILING AREAS SHALL BE PLACED WITHIN THE EXISTING APPROX. 24" H.C. CLEAR SPACE ABOVE CEILING AT SHOWN LOCATIONS. (SEE & REQUEST FROM OWNER THE OWNER'S EXIST. AVAILABLE EXIST. ORIGINAL MECH. & ELEC. DWGS. OF THE BLDG & ALSO OTHER PAST UPDATED PAST PROJECT DWGS. AVAILABLE FROM OWNER IN ELECTRONIC PDF FILES. THESE REFERENCED PDF DWGS ARE NOT INCORPORATED INTO THE PROJECT DWGS SET. THESE CAN BE MADE AVAILABLE TO THE SUCCESSFUL CONTRACTOR)
  - ALL WORK SHALL CONFORM TO APPLICABLE LOCAL & N.C. STATE CODES. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS & IAW CODES REQMTS. INCLUDING ACCESS CLEARANCES & MAINTENANCE ACCESSES. ALL INDOOR VAV HVAC UNITS SHALL HAVE INTEGRAL CONDENSATE PUMPS SUPPLIED WITH THE WORK FOR ANY TOTALLY CONCEALED FAN & COIL COOLING UNIT OF DUCTED OR NON-DUCTED TYPE UNITS LOCATED ABOVE & WITHIN THE NEW CEILING. THESE UNITS SHALL BE PROVIDED WITH EMERGENCY DRAIN PANS EQUIPPED W/ CODE REDD FLOT SWITCHES FOR INDOOR UNIT SHUTDOWNS. PROVIDE CODE SMOKE DETECTORS FOR ALL UNITS FOR AUTO-SHUTDOWN OF FANS IAW CODE REMTS.
  - REFER TO ALL MECHANICAL & ELECTRICAL PLANS & SPECIFICATIONS FOR THE WORK TO BE DONE UNDER THIS PROJECT. DO NOT SCALE THE DRAWINGS. REFER TO THESE PROJECT DWGS. AND ANY REFERENCED OWNERS DWGS. FOR ADDITIONAL EXISTING BUILDING CONDITIONS.
  - THE MECH. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF EQUIPMENT MTD. AND/OR DUCT MTD. DEVICES IN THE PROJECT WORK; TO INSTALL ELEC. SUPPLIED AND WIRED SMOKE DETECTORS IN THE SUPPLY & RETURN AIR SYSTEMS IN NEW AIR HANDLING UNITS, AS MAY BE APPLICABLE. SMOKE DETECTORS FURNISHED DIV.16 ELEC. SHALL BE U.L. LISTED FOR DUCT/SURFACE INSTALLATION. DIV.16 PROVIDED SMOKE DETECTORS SHALL BE COMPATIBLE WITH UNITS & VOLTAGE REQMTS. OF HVAC UNITS SYSTEMS. COORDINATE WITH DIV.16 ELECTRICAL CONTRACTOR WIRING BY DIV.16 ELEC. CONTRACTOR.
  - THE DIVISION CONTRACTOR SHALL PROVIDE AND INSTALL ALL HIS OWN DESIGNATED & FURNISHED EQUIPMENT (INCLUDING ALL DESIGNATED NEW VAV HVAC EQUIPMENT, HANGARS, SUPPORT STANDS, ETC. AND ACCESSORIES). ALL NEW INTERIOR & EXTERIOR HVAC PIPING & ANY OTHER SPECIFIED MECH. CONTRACTOR FURNISHED EQUIPMENT, TO BE INSTALLED BY MECH. CONTRACTOR SHALL BE COORDINATED WITH ALL TRADES PRIOR TO INSTALLATION. ALL HVAC EQUIPMENT SHALL BE SUPPORTED & RESTRAINED PER CODES & ALL NEW EQUIPMENT. SUPPORTS SHALL MEET "IBC" SEISMIC & CATEGORY REQUIREMENTS AS MAY BE REQ'D. OF THE LOCAL & STATE BUILDING CODE. ANY SUPPORTS FOR SEISMIC RESTRAINTS SHALL BE INSTALLED PER THE ANSI "SEISMIC RESTRAINT MANUAL GUIDELINES FOR MECHANICAL SYSTEMS" SECOND EDITION FEBRUARY 1998, AND LATEST ADDENDUM NO.
  - ANY & ALL WALLS AND ROOF PIPING AND EQUIPMENT OPENINGS SHALL BE PROVIDED W/ SHEETMETAL PIPING WALL SLEEVES FULLY CALKED COMPLETE WITH WATER-TIGHT CAULKING MATERIAL PER THE SPECS. AND FOR ROOF OPENINGS 6" MIN. 16" HG. INSULATED ROOF CURBS, AND AS MAY BE APPLICABLE TO THE WORK, SHALL BE INSTALLED TO PROVIDE MAX. SPACE FOR MAINTEN. & SERVICE CLEARANCES OF EQUIP.
  - U.N.O. ANY DISTURBED NEW PIPING & DUCTS SHALL BE PROPERLY CONNECTED & INSULATED AS APPLICABLE; (FOR ANY INTERIOR SUPPLY DUCT & RETURN DUCT IN CONCEALED OR UN-CONDITIONED SPACES) USE "DCC" FOIL-FACED 2" THK. ASJ" WRAP INSULATION. INTERIOR EXPOSED & CONCEALED DUCTS SHALL ALL BE SINGLE WALL SPIRAL ROUND OR RECTANGULAR DUCTS (PER SAMA3A STDS.) & EXTERIORLY INSULATED WITH 2" THICK EXTER. DUCT-WRAP INSULATION. EXPOSED OR CONCEALED EXHAUST DUCT SHALL BE SINGLE WALL SPIRAL ROUND OR RECTANGULAR DUCTS AND SHALL REQUIRE INSULATION. ALL EXTERIOR DUCTWORK & FITTINGS SHALL BE INSULATED W/ MIN. OF 1-1/2" TK. CLOSED CELL FLEXIBLE UN-CELLULAR SHEET INSULATION (IAW MFRG. REQUIREMENTS) AND FINISHED W/ (0.016" TK.) ALUMINUM JACKETING OVER ALL DUCTWORK.
  - WHERE PROJECT DRAWINGS SHOW NEW WORK TO INCLUDE NEW ROOFTOP UNITS, AHU'S, ETC. AND NEW DUCTWORK WITH THESE SYSTEMS, THE SYSTEMS AND ACCESSORIES FOR THESE UNITS SHALL INCLUDE ALL NEW INTERIOR ALL METAL & FLEX. DUCTS. ALL FLEXIBLE DUCT SHALL BE INSULATED TYPE, SOUND ATTENUATING, LOW VELOCITY TYPE AND SHALL COMPLY WITH NFPA 90A AND 90B. FLEXIBLE DUCT SHALL BE U.L. LISTED, CLASS 2 INSULATED TYPE, RATED FOR A MINIMUM OF 4'-6" NEGATIVE OR POSITIVE PRESSURE. DUCT SHALL BE FACTORY FORMED, COMPOSED OF SPIRAL WOUND, CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER COVERED WITH 1-1/2" THICK INSULATION (UNLESS OTHERWISE NOTED) WITH VAPOR BARRIER.
  - PROJECT DRAWINGS SHOW NEW WORK TO INCLUDE NEW DUCTWORK SYSTEMS AND ACCESSORIES FOR THE PROJECT, AS MAY BE APPLICABLE TO THE WORK. DUCTWORK AS SHOWN ON THE DRAWINGS IS STRICTLY DIAGRAMMATIC. DIV.15 MECH. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING FRAMING AND BLDG STEEL LOCATIONS & SUPPORTS LOCATIONS AND COORDINATE THESE FOR ANY INTERFERENCES TO THAT OF NEW UNITS ABOVE CEILING. ALL NEW PIPING & NEW DUCT AS APPLICABLE AND/OR COORDINATE ALL NEW DUCT LOCATIONS WITH THE BUILDING STRUCTURE & THAT OF ALL NEW WORK; DO NOT LOCATE DUCTS WHICH MAY INTERFERE W/ OTHER TRADES WORK AND MAINTENANCE OR ACCESSIBILITY. CONTACT ENGINEER AND OWNER BEFORE INSTALLING ANY TIGHT OR PROBLEM AREAS OF ANY NEW SYSTEMS AND NEW UNIT LOCATIONS.
  - PROJECT DRAWINGS SHOW NEW ALL NEW ROOF MTD. UNITS AND NEW REFRIGERANT PIPING AND NEW ROOFTOP HVAC UNITS & ASSOCIATED DUCTWORK SYSTEMS AND ACCESSORIES FOR THESE LOCATIONS/PROJECT, AS APPLICABLE TO THE WORK. ALL NEW METAL DUCT SHALL BE CONSTRUCTED OF ALL ALUMINUM OR GALVANIZED STEEL SHEETS, UNLESS NOTED OTHERWISE, & DUCTS SHALL BE INSTALLED IN ACCORDANCE WITH LATEST UPDATES OF THE 2007 "SAMA3A" GUIDE, FOR GAGES AND STANDARDS. ALL NEW DUCT JOINTS SHALL BE "BTD" TYPE OR OTHER MECHANICALLY FASTENED/BOLTED & GASKETED JOINTS & CONNS. ALL DUCT CHANGES WHICH MAY BE REQUIRED SHALL MEET THE REQUIRED ENGINEER'S PRIOR APPROVAL BEFORE CHANGES OR FABRICATIONS OCCUR FOR THESE INSTALLATIONS. ALL JOINTS SHALL REQUIRE GASKETED "TDC" CONNS. AND ALL JOINTS SHALL BE DUCT-SEALED WITH DUCT SEALANT PER ENGINEER'S APPROVAL/SPECS. AND MADE AIRTIGHT PRIOR TO INSTALL OF ALL NEW DUCT INSULATION. NO SQUARE CORNER DUCTWORK ELBOWS SHALL BE ALLOWED TO BE INSTALLED ANYWHERE ON THE PROJECT UNLESS NOTED OR OTHERWISE SHOWN. ALL TURNS/BENDS & ELBOW FITTINGS ON ALL DUCTS SHALL BE MADE W/ CURVED RADIUS ELBOWS OR CURVED HEELS/THROATS ONLY & ALL BENDS SHALL NOT HAVE ANY TURNING VANES. PROVIDE BALANCE DAMPERS IN ALL BRANCH TAKE-OFFS OF SUPPLY AND RETURN DUCTS AND IN ALL TERMINAL DUCTS RUN-OUTS FOR ALL SYSTEMS. ALL ROUND & RECTANGULAR DUCTS DAMPERS SHALL BE MULTIPLE OPPOSED-BLADE DAMPERS AND SHALL BE OF THE QUADRANT LOCKING TYPE & SHALL BE MADE OF ALL ALUMINUM OR ALUMINIZED STEEL.
  - DIV.15 MECH. CONTRACTOR SHALL FURNISH TO THE OWNER & ENGINEER UPON COMPLETION OF PROJECT, A BOUND SET OF TEST & BALANCE REPORTS OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL NEW VAV SYSTEMS AND ALL OTHER SPECIFIED NEW SYSTEMS AND EQUIPMENT & DUCTWORK SYSTEMS. CONTRACTOR SHALL PROVIDE FOR THE WORK AN SIGNED AFFIDAVIT SIGNED BY THE DIV. 15 MECH. CONTRACTOR, CONTROLS CONTRACTOR, & TEST/BALANCE CONTRACTOR THAT THE BUILDING HAS BEEN ADJUSTED & SET/LEFT IN A POSITIVE - PRESSURE CONDITION OF (A MINIMUM OF 0.037" W.C.) POSITIVE AIR PRESSURE.
  - AS MAY BE APPLICABLE TO THE NEW EQUIPMENT & WORK, PROVIDE NEW REPLACEMENT AIR FILTERS ON ALL NEW MECH. AHU'S, FANS & OTHER NEW EQUIPMENT SUPPLIED UNDER DIVISION PRIOR TO OWNER'S OPERATING & ACCEPTANCE OF THE SYSTEMS BY THE OWNER.
  - NO FLAMMABLE MATERIAL SHALL BE ALLOWED ABOVE ANY CEILING OR RETURN AIR PLenums.
  - THE DIV. 15M MECHANICAL CONTRACTOR SHALL BE THE CONTROL CONTRACTOR & SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR THAT WIRING HE PROVIDE & HE MAY PROVIDE SOME LIMITED MEDIUM & ALL LOW CONTROL VOLTAGE WIRING (LIMITED 110-120V. AND ALL 24V) FOR ALL HVAC CONTROLS OF UNITS EQUIPMENT & CONTROLS WIRING SUCH AS TERMINAL DEVICE BOXES AND CONTROLS & MOTORIZED DAMPERS, EQUIP. CONTROL PANELS, ETC. THE SOURCE OF ALL MAIN ELECTRICAL SUPPLY POWER VOLTAGES (NOT FOR NEW THERMOSTATS) & MAJOR HVAC PANELS & REQUIRED JUNCTION BOX(S) SHALL BE PROVIDED BY & UNDER THE ELECTRICAL CONTRACTOR. ALL CONTROL PWR. TRANSFORMERS SHALL BE SHALL BE FURNISHED & INSTALLED BY THE DIV.16 ELECTRICAL CONTRACTOR
  - THE DIV. 15M MECHANICAL CONTRACTOR SHALL PROVIDE ALL HVAC TESTING & BALANCING (T&B) TO BALANCE THE NEW HVAC UPGRADE SYSTEMS AND ALL NEW DUCTED AND TERMINAL VAV EQUIPMENT AIR SYSTEMS (AS APPLICABLE TO THE WORK). FOR ALL AIR FLOWS OF THE NEW SYSTEMS, DIV. 15M MECH. CONTRACTOR SHALL PROVIDE AN SIGNED AFFIDAVIT THAT THE NEW HVAC AIR SYSTEMS HAVE BEEN ADJUSTED AS INDICATED ON THESE DWGS. (SUBMIT COPIES TO OWNER & ENGINEER)
  - IF ANY DUCTWORK IS INSULATED OR TO BE INSULATED, ALL INSULATION SHALL HAVE MASTIC OVER ALL JOINTS OF THE DUCTWORK & INSULATION; DUCT TAPE IS NOT ACCEPTABLE.
  - ALL NEW MECHANICAL EQUIPMENT SHALL BE IN COMPLIANCE TO ASHRAE 90.1

GENERAL OUTDOOR DESIGN TEMPERATURES:

WINTER	= 10 DEG F DB
SUMMER	= 92 DEG F DB / 74 DEG F WB

GENERAL TARGET INDOOR DESIGN CONDITIONS: (AS APPLICABLE) SUMMER WINTER

LOBBY AREAS	75-78 DEG F DB/ 50% RH	*68-72 DEG F DB
LABS OR RESEARCH ROOM AREAS	75-78 DEG F DB/ 50% RH	*68-72 DEG F DB
OFFICES & ADMIN SPACES	75-78 DEG F DB/ 50% RH	*68-72 DEG F DB
ETS & COMPUTER ROOM SPACES	70-74 DEG F DB/ 40-50% RH	*68-72 DEG F DB
SPECIALTY SPACES (SECURITY, ETC)	74-78 DEG F DB/ 50% RH	*68-72 DEG F DB
GENERAL SPACES	75-78 DEG F DB/ 50% RH	*68-72 DEG F DB
MOVING TRANSIENT SPACES	75-78 DEG F DB/ 50% RH	*68-72 DEG F DB
ELECTRICAL/TELECOM	85 DEG F DB/ 60% RH	* 65 DEG F DB
MECHANICAL ROOMS	90 DEG F DB/ 50% RH	* 60 DEG F DB
SPECIALTY SPACES (ENVIRONMENTAL)	(AS MAY BE NOTED FOR DB & % RH.)	
ETS & COMPUTER ROOM SPACES	70-74 DEG F DB/ 40-50% RH	*68-72 DEG F DB

\* 50% RH IS A TARGET DESIGN POINT. (+/- 15%), UNLESS NOTED OTHERWISE. NOTE: SYSTEMS ARE NOT DESIGNED FOR CONTROLLED DEHUMIDIFICATION OR HUMIDIFICATION TO PROVIDE AND MAINTAIN ANY CONTROLLED RELATIVE HUMIDITY SETPOINTS, UNLESS SPECIALLY NOTED OTHERWISE ON THE DOCUMENTS.

NOTE: SOME MECHANICAL SYMBOLS AND ABBREVIATIONS SHOWN ON THIS DRAWING MAY NOT BE APPLICABLE TO THIS PROJECT.

<p>REVISIONS</p> <table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td>1</td> <td>DEC. 16, 2019</td> <td>ISSUED FOR OWNER BIDDING.</td> </tr> </table>		NO.	DATE	DESCRIPTION	1	DEC. 16, 2019	ISSUED FOR OWNER BIDDING.	<p>DESIGNED BY: S.BRAUNBECK &amp; J.CAPITAN</p> <p>CHECKED BY: CAPITAN</p> <p>DATE: DECEMBER-16-2019</p> <p>SCALE: AS NOTED</p> <p>JOB NO.: DEJ JOB NO. 19005</p>	<p>DESIGN &amp; ENGINEERING</p> <p>ENERGY SYSTEMS</p> <p>INFRASTRUCTURE UTILITIES</p> <p>SYSTEMS ANALYSIS</p> <p>COMMISSIONING REVIEW</p>	<p><b>DELTA</b></p> <p>DELTA ENGINEERING, INC. CONSULTING ENGINEERS</p> <p>315 EAST BROAD STREET, GREENVILLE, SC 29601</p> <p>GREENVILLE, SC TEL. NO. (864) 505-5355</p> <p>3106 RIVERVIEW VIEW, CHARLESTON, SC 29414</p> <p>GREENVILLE, SC TEL. NO. (864) 505-2976</p> <p>Em: jcapitan@gmail.com</p>	<p>THIS DRAWING IS THE PROPERTY AND COPYRIGHT OF DELTA ENGINEERING, INC. AND SHALL NOT BE USED OR COPIED WITHOUT WRITTEN PERMISSION. COPYRIGHT ©</p>	<p>PROJECT: 2019 - 2020 HVAC UPGRADES TO FLAT ROCK &amp; RUGBY MIDDLE SCHOOLS</p> <p>HENDERSON COUNTY PUBLIC SCHOOLS</p> <p>414 - 4TH STREET, HENDERSONVILLE, HENDERSON COUNTY, NORTH CAROLINA 29621</p>	<p>DRAWING: M O - 1</p> <p>SHEET: 2 OF 2</p> <p>REV. NO.: 1 OF 1</p>
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